



**13<sup>th</sup> ITS EUROPEAN CONGRESS**

**FULFILLING ITS PROMISES**

Brainport Eindhoven, the Netherlands | 3-6 June 2019

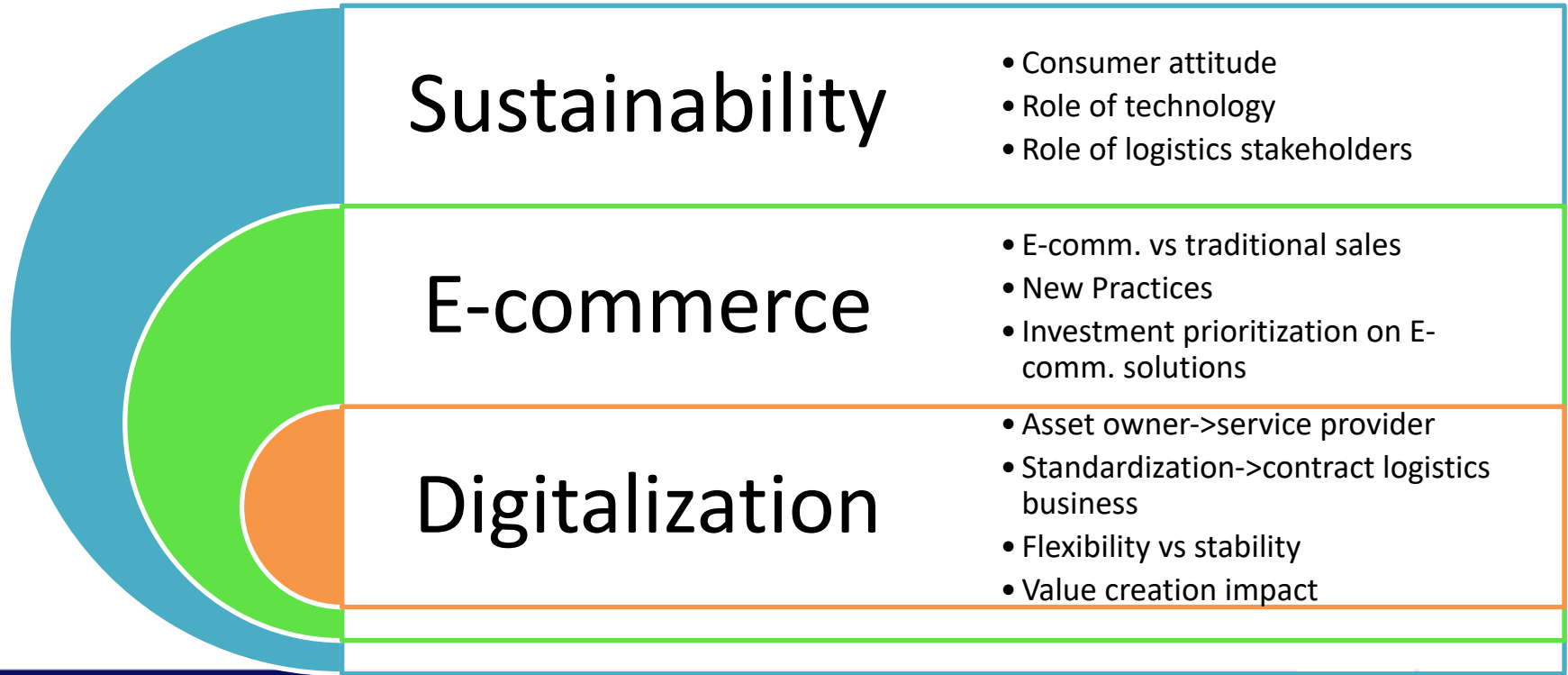
Evoluon Congress Center  
Helmond Automotive Campus

# The FUTURE OF LOGISTICS - IMPACT OF EMERGING TECHNOLOGIES

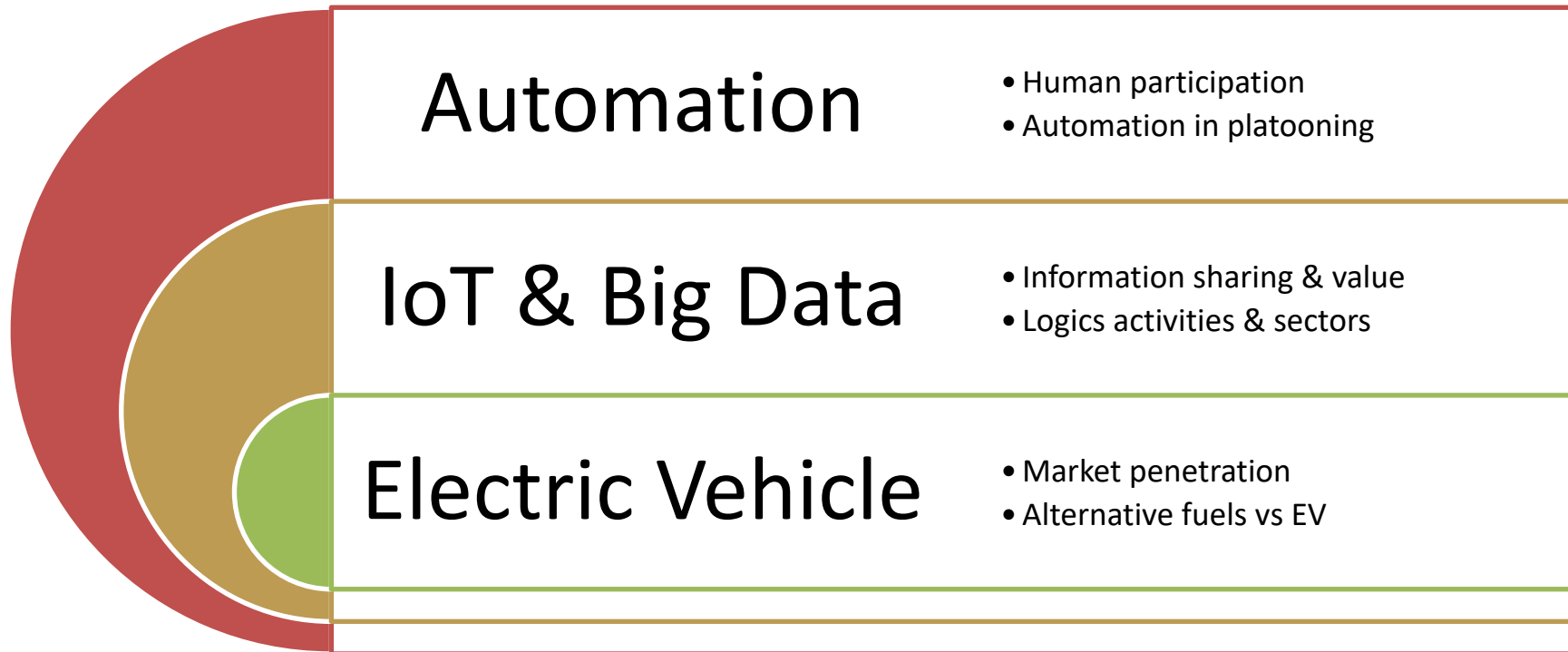
# Emerging Technologies (Drivers)

- Sustainability
- E-commerce
- Digitalization
- Automation
- IoT and Big Data
- Electric Vehicles
- Collaboration
- Sharing Economy
- 3D Printing

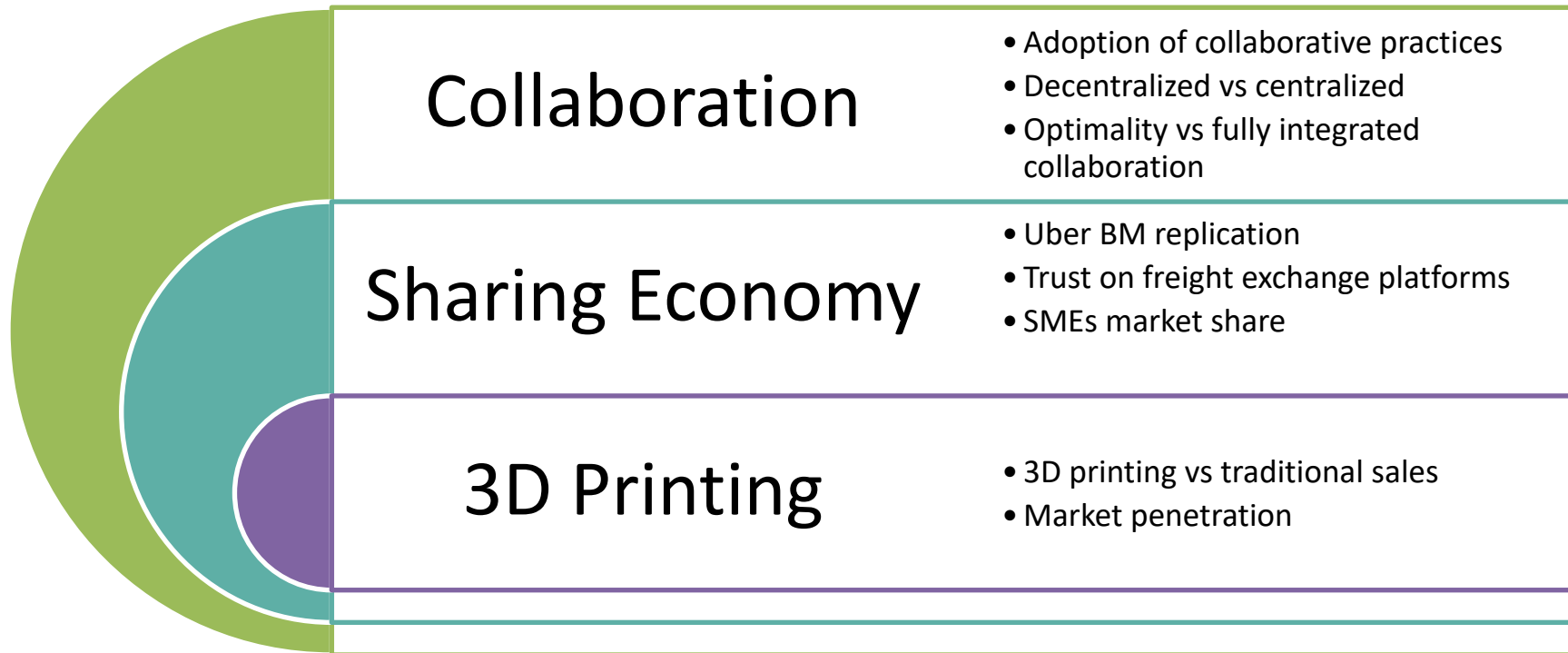
# Emerging Technologies (Drivers) I



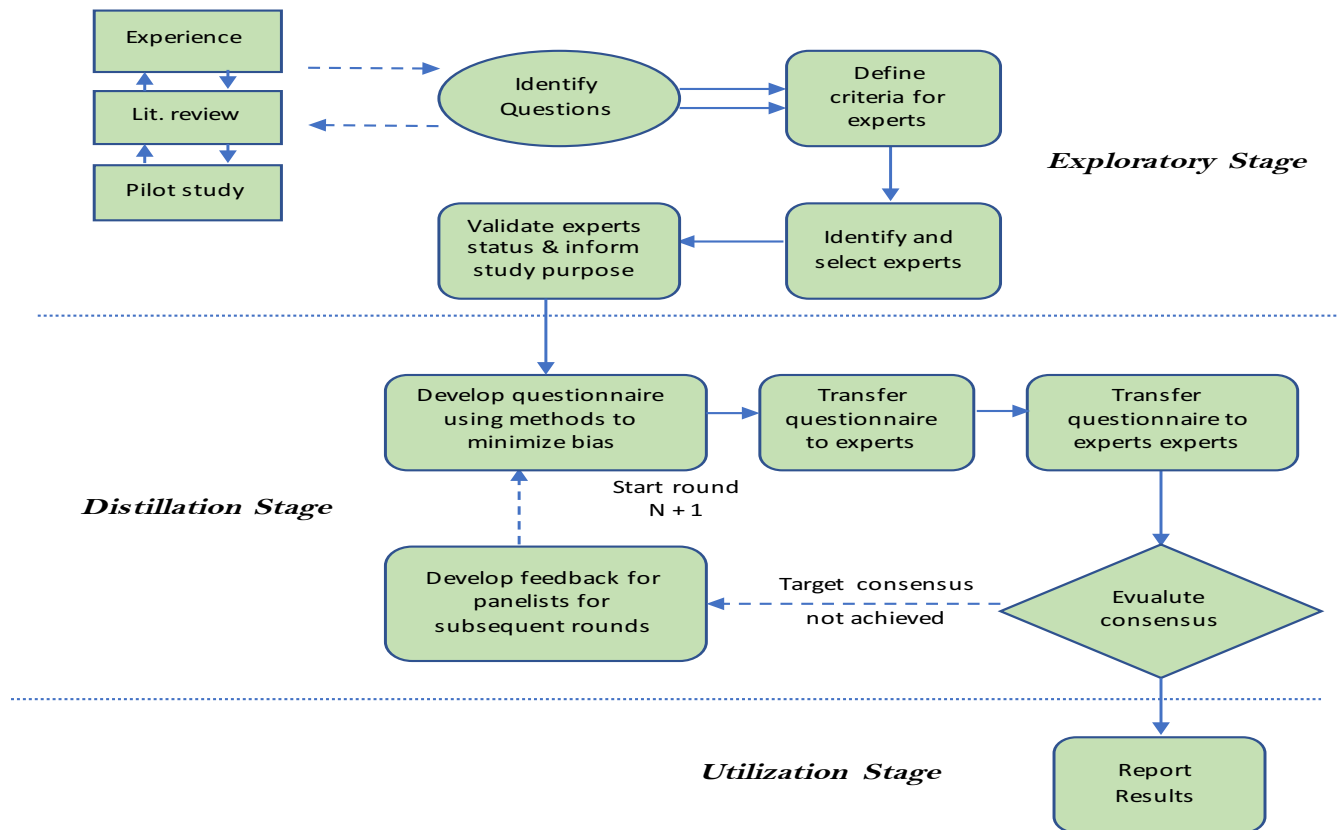
# Emerging Technologies (Drivers) II



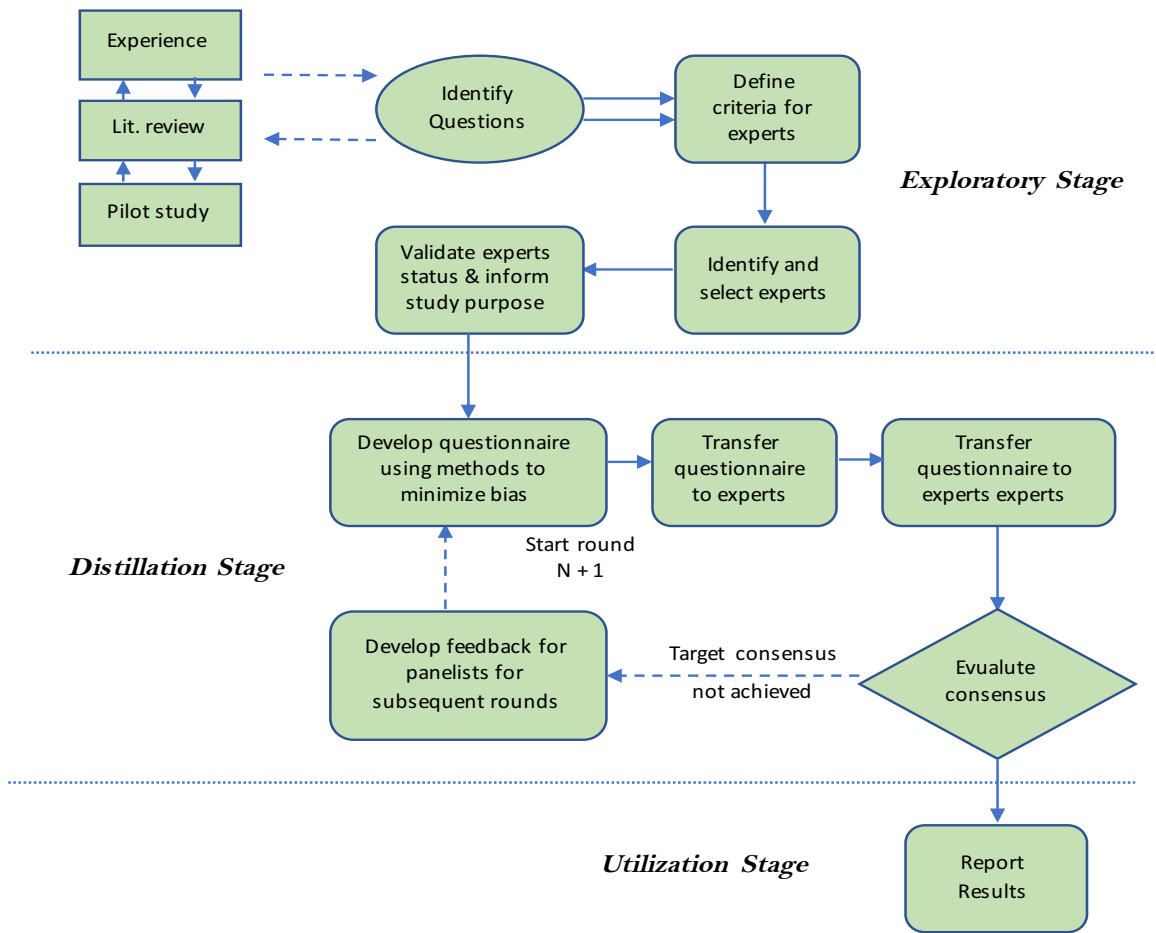
# Emerging Technologies (Drivers) III



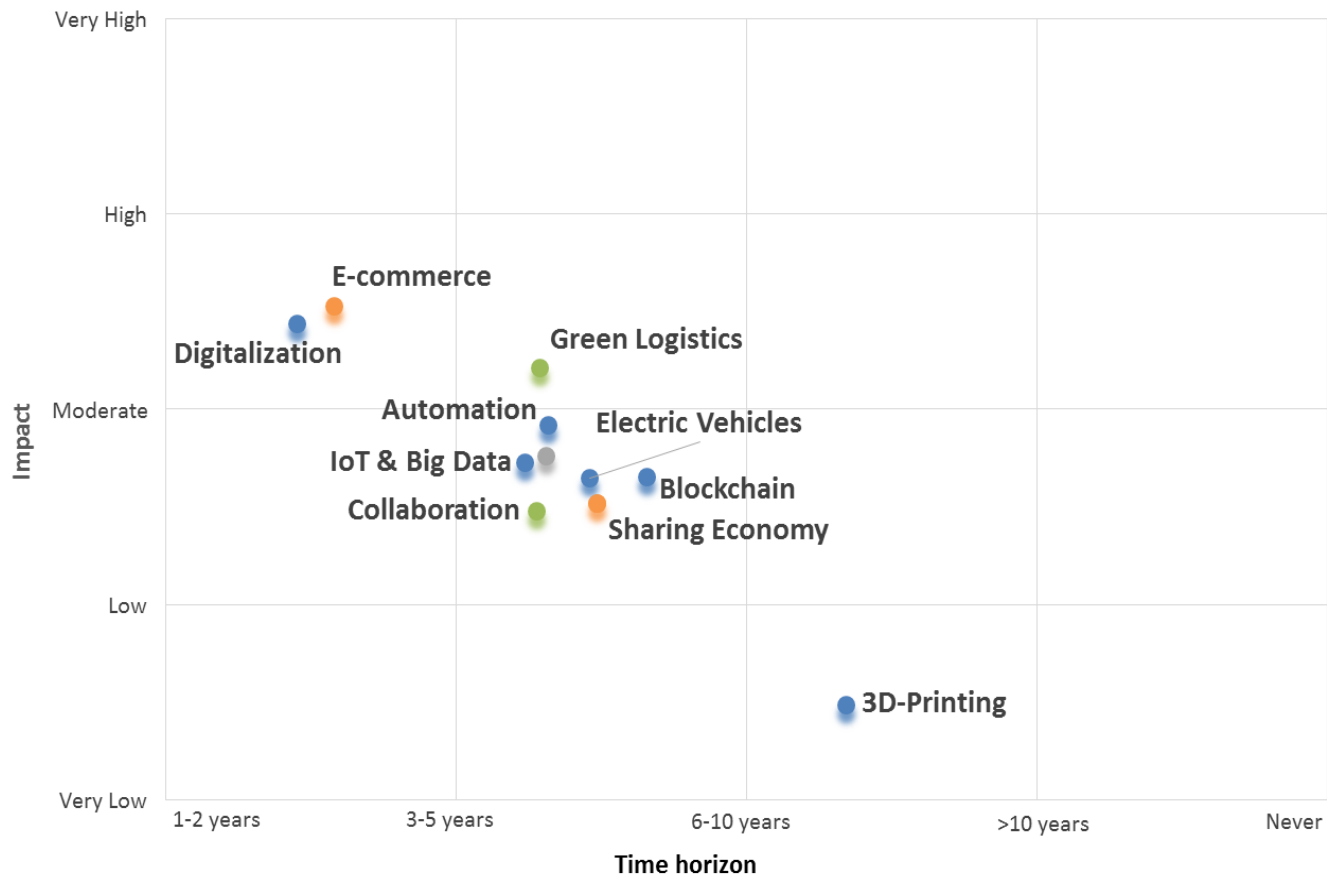
# The Delphi Approach



# The Delphi Approach





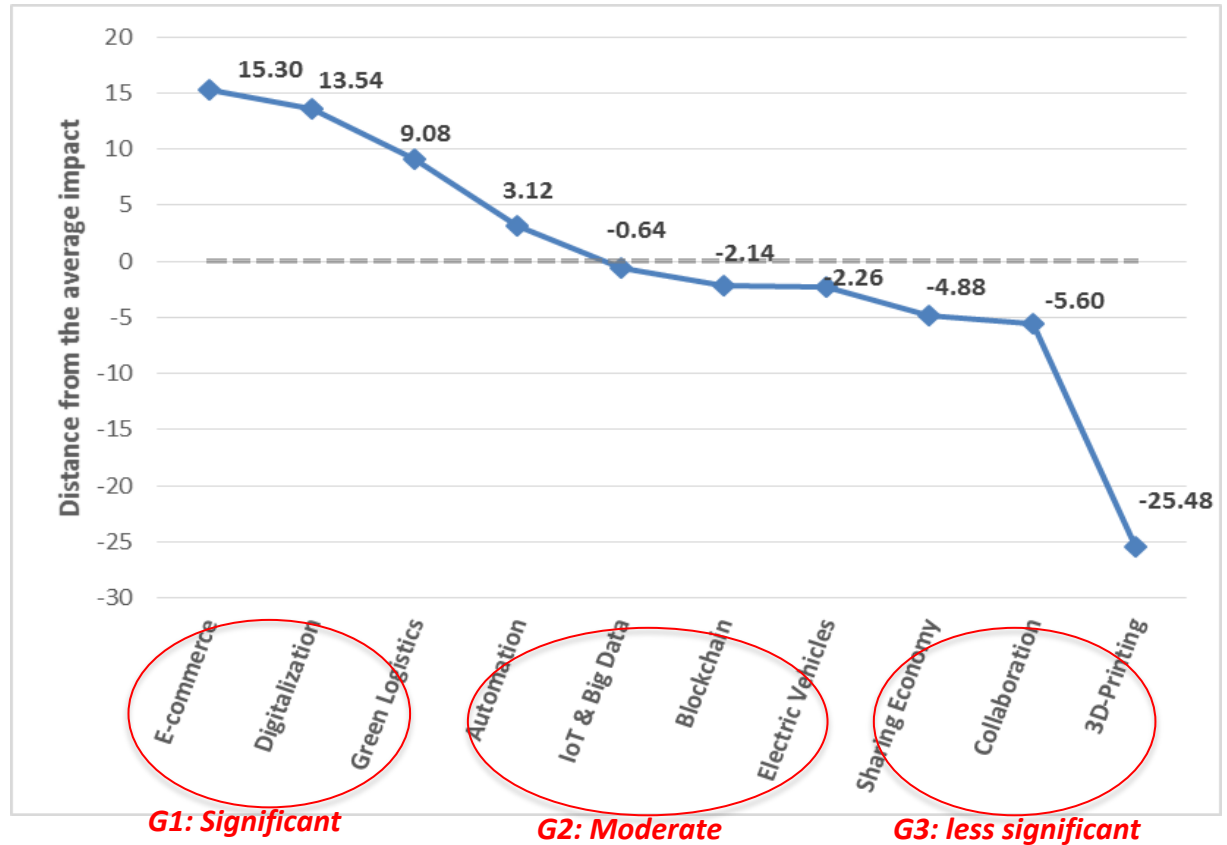


# Drivers Impact Categorization

<i>Driver/Trend</i>	<i>Impact On a scale from 1 to 5</i>	<i>Impact On a scale from 0-100</i>
E-commerce	3.52	70.48
Digitalization	3.44	68.72
Green Logistics	3.21	64.26
Automation	2.92	58.30
IoT & Big Data	2.73	54.54
Blockchain	2.65	53.04
Electric Vehicles	2.65	52.92
Sharing Economy	2.52	50.30
Collaboration	2.48	49.58
3D-Printing	1.49	29.70

**Average = 2.76**

## Impact of Drivers & Distance from the Avg.

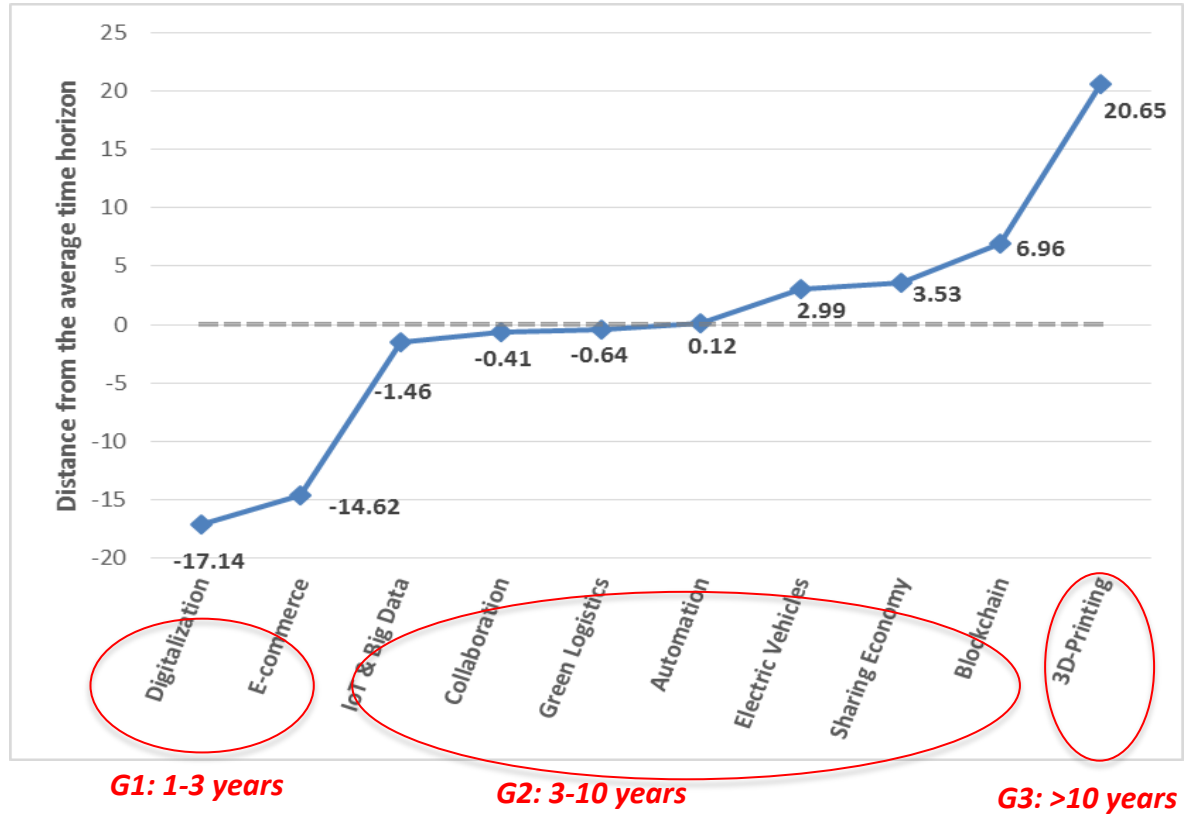


# Impact in terms of Time

<i>Driver/Trend</i>	<i>Impact On a scale from 1 to 5</i>	<i>Impact On a scale from 0-100</i>
Digitalization	1.45	29.06
E-commerce	1.58	31.58
IoT & Big Data	2.24	44.74
Collaboration	2.28	45.56
Green Logistics	2.29	45.79
Automation	2.32	46.32
Electric Vehicles	2.46	49.19
Sharing Economy	2.49	49.73
Blockchain	2.66	53.16
3D-Printing	3.34	66.84

**Average = 2.76**

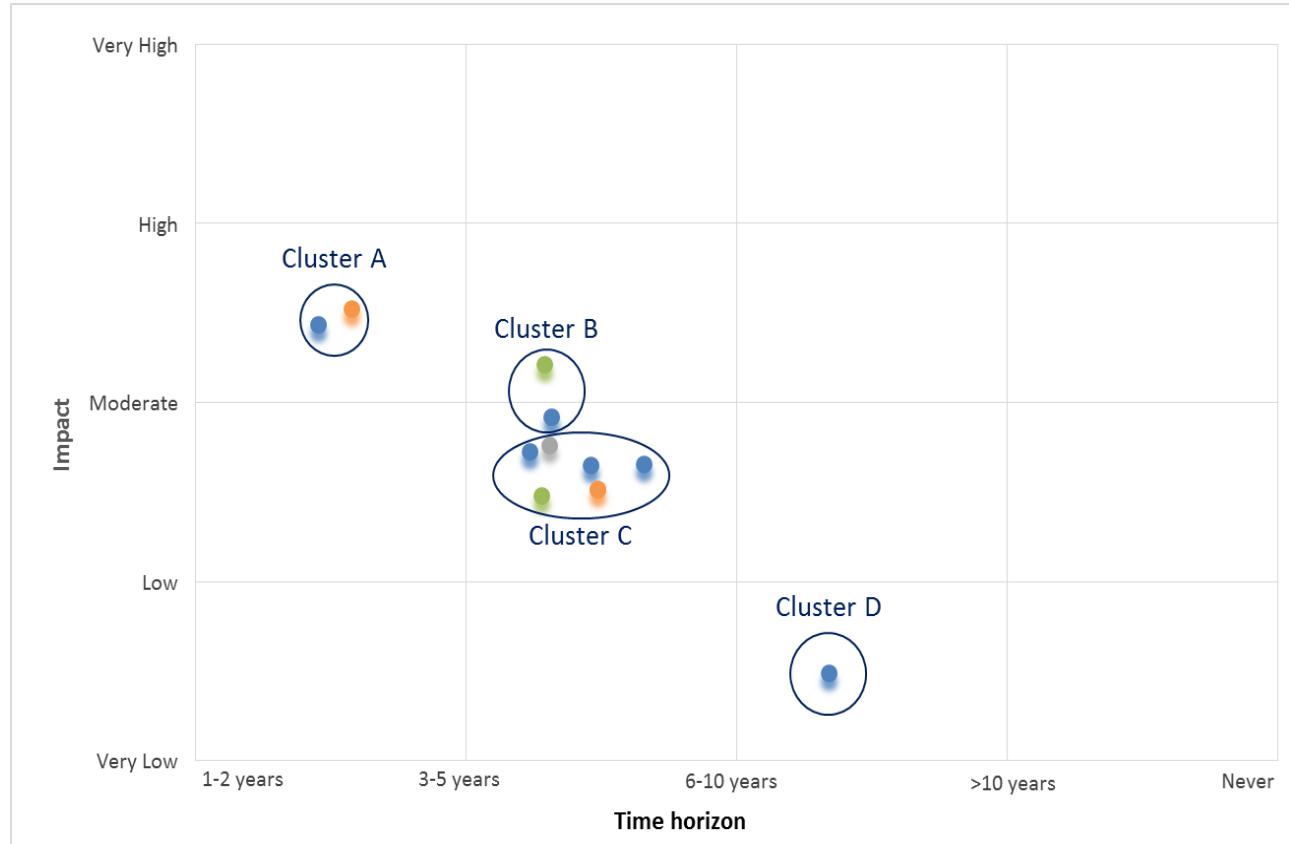
## Impact with Time Horizon



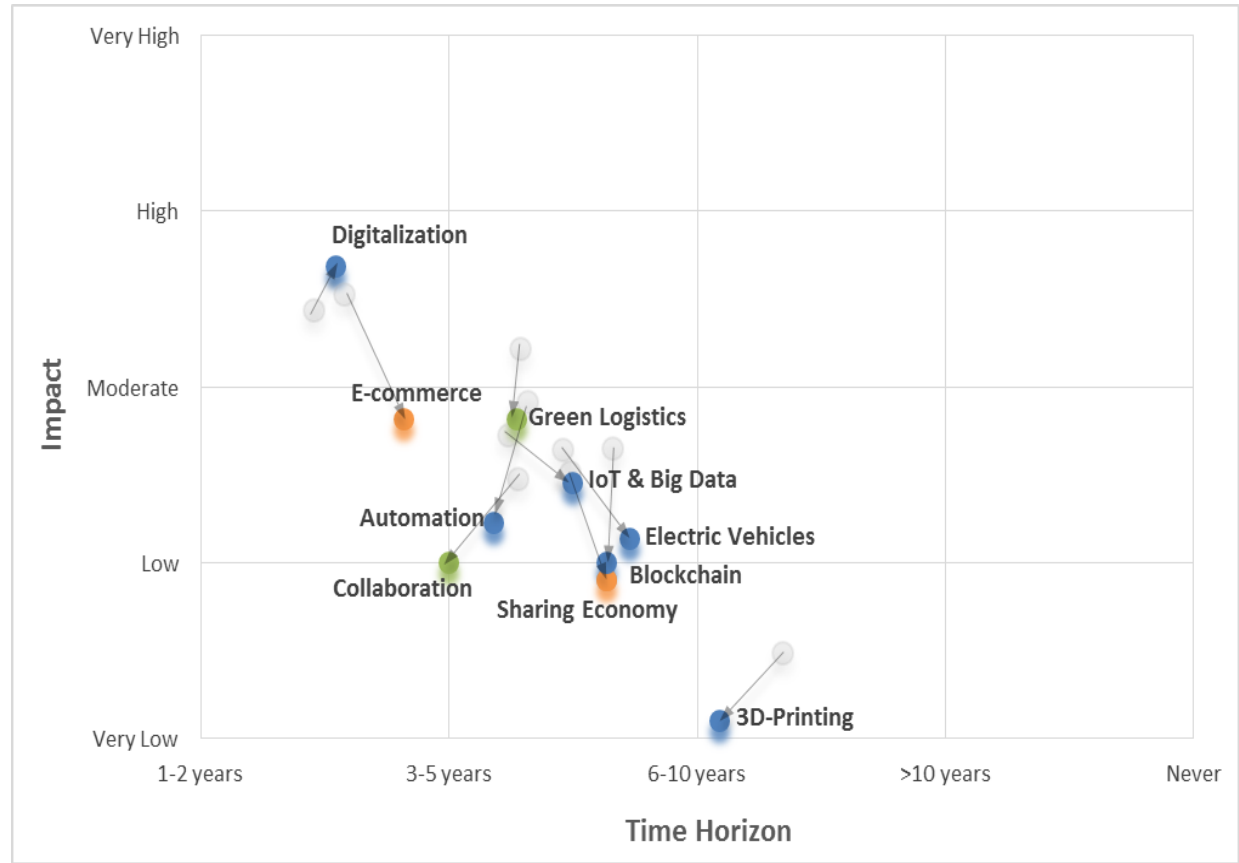
# Clustering of Drivers

<i>Clusters</i>	<i>Drivers</i>	<i>Impact</i>	<i>Time horizon</i>
<b>Cluster A</b>	E-Commerce	Moderate – High	Relative close
	Digitalization	Average: 2.8	Average: 1.2
<b>Cluster B</b>	Green Logistics	Moderate	Relatively Far
	Automation	Average: 2.4	Average: 1.8
<b>Cluster C</b>	IoT & Big Data	Low – Moderate	Relatively Far
	Blockchain	Average: 2	Average: 1.9
	Electric Vehicles		
	Sharing Economy		
	Collaboration		
<b>Cluster D</b>	3D Printing	Low	Far
		Average: 1.1	Average: 2.6

## Clustering of Drivers - Visuals



## Clustering accoring to Business Sector

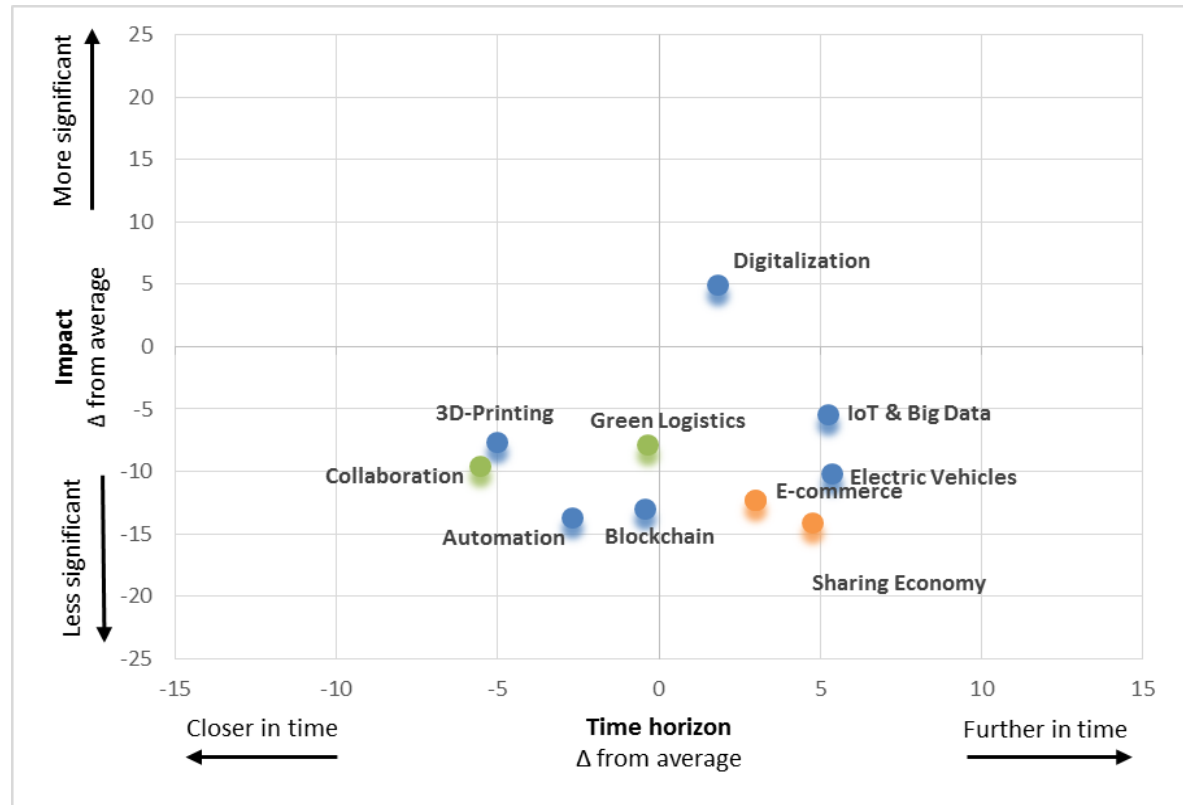




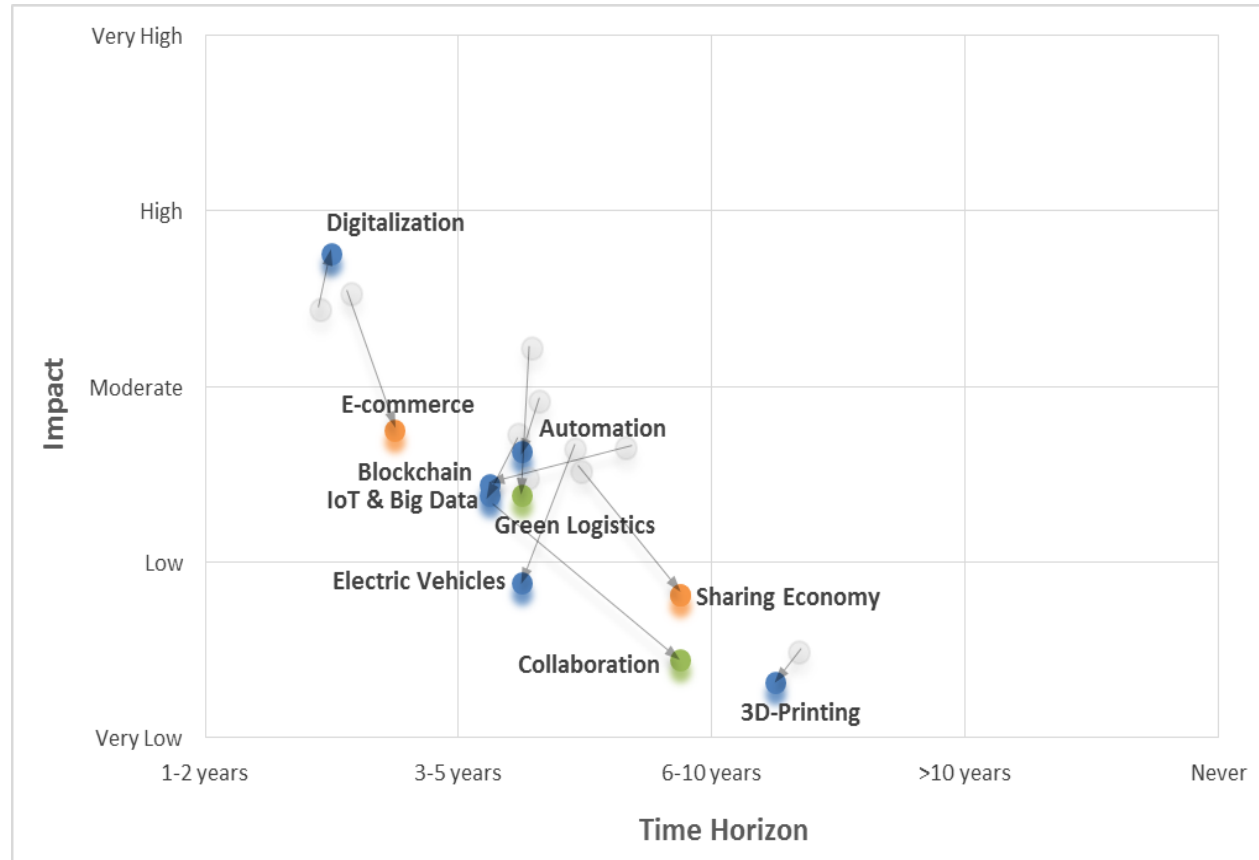
# Clustering – Business Sector

<i>Trend/Driver</i>	<i>Impact</i>			<i>Time horizon</i>		
	<i>Scale 1-5</i>	<i>Scale 0-100</i>	<i>Δ from sample</i>	<i>Scale 1-5</i>	<i>Scale 0-100</i>	<i>Δ from sample</i>
Green Logistics	2.82	56.36	-7.90	2.27	45.45	-0.33
E-commerce	2.82	56.36	-14.12	1.82	36.36	4.78
Sharing Economy	1.90	38.00	-12.30	2.64	52.73	3.00
Electric Vehicles	2.14	42.73	-10.19	2.73	54.55	5.36
IoT & Big Data	2.45	49.09	-5.45	2.50	50.00	5.26
Automation	2.23	44.55	-13.75	2.18	43.64	-2.68
Blockchain	2.00	40.00	-13.04	2.64	52.73	-0.43
Digitalization	3.68	73.64	4.92	1.55	30.91	1.85
Collaboration	2.00	40.00	-9.58	2.00	40.00	-5.56
3D-Printing	1.10	22.00	-7.70	3.09	61.82	-5.02
<i>Average</i>	<i>2.31</i>	<i>46.27</i>	<i>-9.11</i>	<i>2.34</i>	<i>46.82</i>	<i>0.42</i>

## Clustering - Business Sector (Deviation from avg)



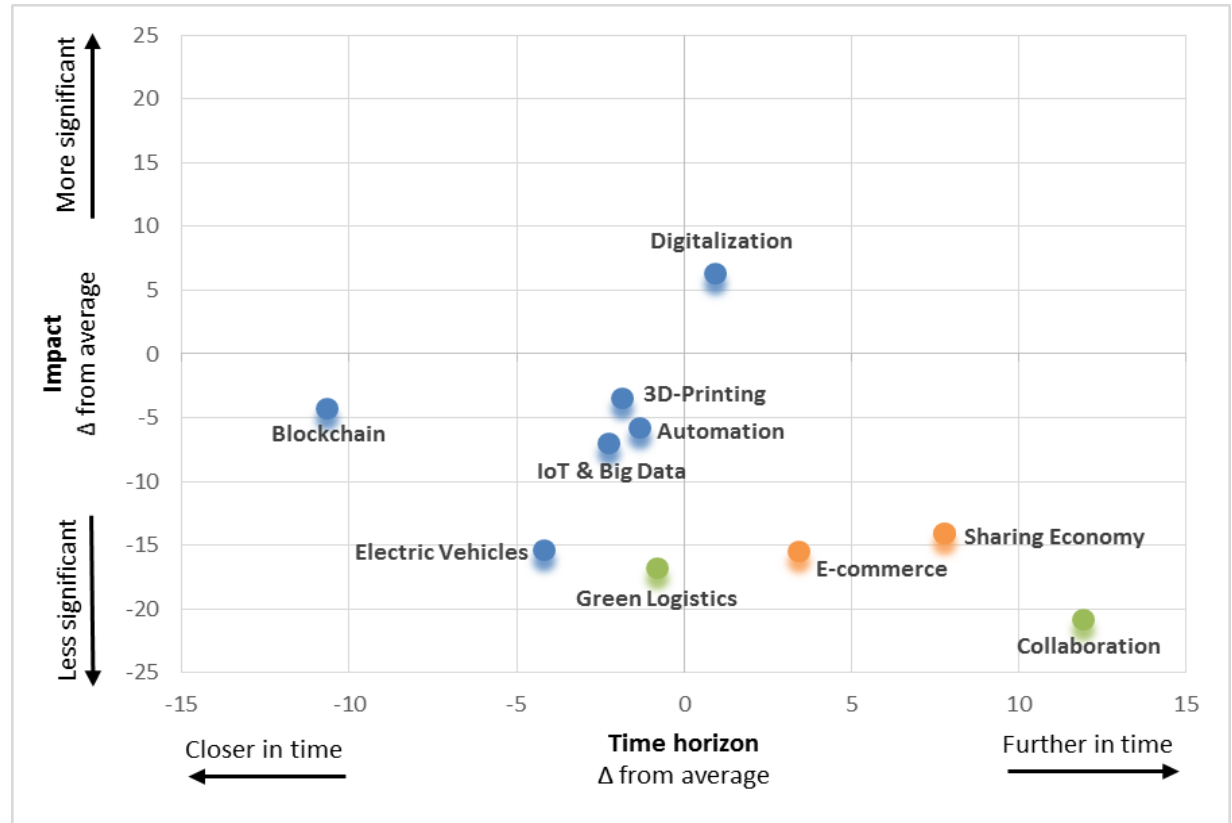
## Clustering according to Authorities



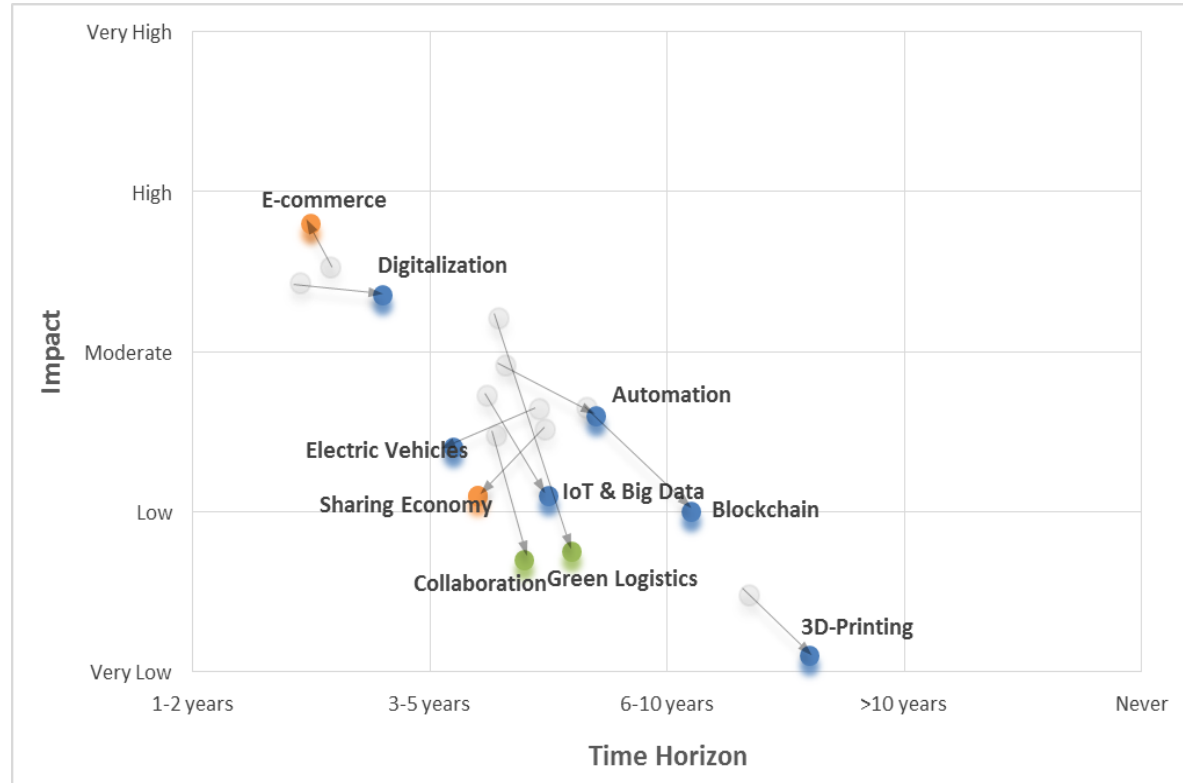
# Clustering – Authorities

<i>Trend/Driver</i>	<i>Impact</i>			<i>Time horizon</i>		
	<i>Scale</i>	<i>Scale</i>	<i>Δ from sample</i>	<i>Scale</i>	<i>Scale</i>	<i>Δ from sample</i>
	<i>1-5</i>	<i>0-100</i>		<i>1-5</i>	<i>0-100</i>	
Green Logistics	2.38	47.50	-16.76	2.25	45.00	-0.79
E-commerce	2.75	55.00	-15.48	1.75	35.00	3.42
Sharing Economy	1.81	36.25	-14.05	2.88	57.50	7.77
Electric Vehicles	1.88	37.50	-15.42	2.25	45.00	-4.19
IoT & Big Data	2.38	47.50	-7.04	2.13	42.50	-2.24
Automation	2.63	52.50	-5.80	2.25	45.00	-1.32
Blockchain	2.44	48.75	-4.29	2.13	42.50	-10.66
Digitalization	3.75	75.00	6.28	1.50	30.00	0.94
Collaboration	1.44	28.75	-20.83	2.88	57.50	11.94
3D-Printing	1.31	26.25	-3.45	3.25	65.00	-1.84
<b>Average</b>	<b>2.28</b>	<b>45.50</b>	<b>-9.88</b>	<b>2.33</b>	<b>46.50</b>	<b>0.11</b>

## Clustering – Authorities (Deviation from avg)



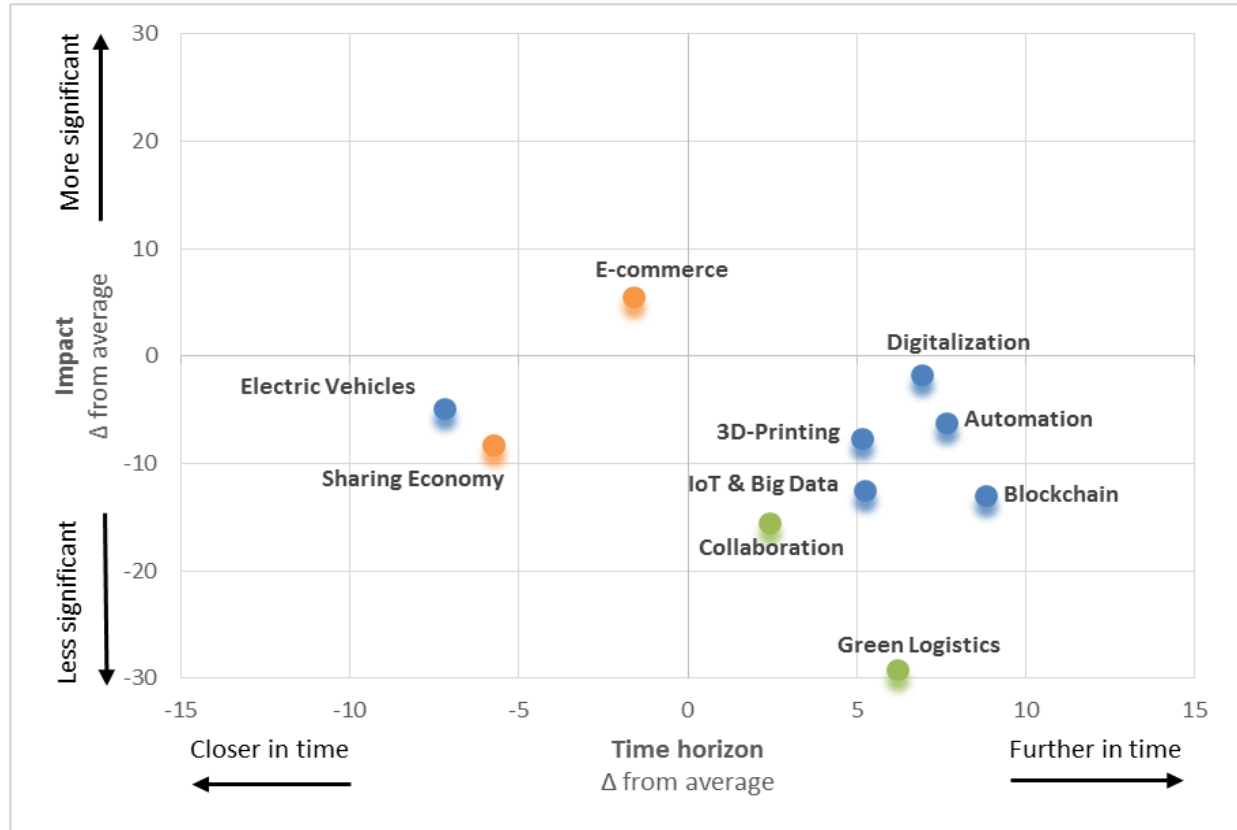
## Clustering – Research Sector



# Clustering Summary - Authorities

<i>Trend/Driver</i>	<i>Impact</i>			<i>Time horizon</i>		
	<i>Scale 1-5</i>	<i>Scale 0-100</i>	<i>Δ from sample</i>	<i>Scale 1-5</i>	<i>Scale 0-100</i>	<i>Δ from sample</i>
Green Logistics	1.75	35	-29.26	2.6	52	6.21
E-commerce	3.8	76	5.52	1.5	30	-1.58
Sharing Economy	2.1	42	-8.30	2.2	44	-5.73
Electric Vehicles	2.4	48	-4.92	2.1	42	-7.19
IoT & Big Data	2.1	42	-12.54	2.5	50	5.26
Automation	2.6	52	-6.30	2.7	54	7.68
Blockchain	2	40	-13.04	3.1	62	8.84
Digitalization	3.35	67	-1.72	1.8	36	6.94
Collaboration	1.7	34	-15.58	2.4	48	2.44
3D-Printing	1.1	22	-7.70	3.6	72	5.16
<i>Average</i>	<i>2.29</i>	<i>45.8</i>	<i>-9.58</i>	<i>2.45</i>	<i>49</i>	<i>2.61</i>

Clustering –  
Research  
Sector  
(Deviation  
from avg)







Comments

Questions

Discussion



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